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Please add the following new claims:

--20. A compound according to claim 4 wherein Z comprises the base of a nucleoside.

21. A compound according to claim 12 wherein Z comprises the base of a nucleoside.

22. A compound according to claim 9 wherein said base is selected from the group consisting of adenosine, guanosine, thymidine, cytidine and uridine.

23. A compound according to claim 20 wherein said base is selected from the group consisting of adenosine, guanosine, thymidine, cytidine and uridine.

²⁴
23. A compound according to claim 17 wherein said base is selected from the group consisting of adenosine, guanosine, thymidine, cytidine and uridine.

²⁵
24. A compound according to claim 21 wherein said base is selected from the group consisting of adenosine, guanosine, thymidine, cytidine and uridine.--

REMARKS

Claims 4-5, 9-10, 12-13 and 17-24 are in the case. Support for the new claims are found on page 11.

Claims 4-5, 9-10, 12-13 and 17-19 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite.

Claims 4-5, 9-10, 12-13 and 17-19 are rejected for the use of the term "comprising". Without admitting the propriety of the rejection, the claims have been amended to use the open language "having".

With respect to claim 13, the applicants respectfully submit that the "further comprising" language is correct. A transition metal ion and one or more co-ligands may be introduced to the compound without altering its formula; that is, the nitrogens of the

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phenanthroline molecule serve as coordination atoms of the metal ion.

The Examiner states that it is unclear whether claims 4 and 5 are within the scope of the elected subject matter. As noted in the restriction requirement, claims 4 and 5 are "linking" claims. Since a nucleoside base is a substituted aromatic group, claims 4 and 5 are within the scope of the elected subject matter.

The Examiner requests a definition of the term "substituted aromatic group". The applicants respectfully remind the Examiner that an applicant may be his own lexicographer; see M.P.E.P. §2173.01, and Intellicall, Inc. v. Phonometrics, Inc. 21 USPQ 2d 1383 (Fed. Cir. 1992). The applicants submit that page 9 of the specification clearly defines this term:

By "aromatic" or "aromatic group" herein is meant aromatic and polynuclear aromatic rings including aryl groups such as phenyl, benzyl, and naphthyl, naphthalene, anthracene, phenanthroline, heterocyclic aromatic rings such as pyridine, furan, thiophene, pyrrole, indole, pyrimidine and purine, and heterocyclic rings with nitrogen, oxygen, sulfur or phosphorus. Preferred aromatic groups include phenyl groups, pyridine, purine, and pyrimidine groups.

Similarly, "substituted aromatic group" is fully defined, also on page 9:

By "substituted aromatic group" herein is meant that the aromatic moiety to which the 1,10-phenanthroline is attached contains further substitution moieties. That is, in addition to the phenanthroline derivative, the aromatic group may be further substituted by any number of substitution moieties. The substitution moiety may be chosen from a wide variety of chemical groups, or biological groups including amino acids, proteins, nucleosides, nucleotides, nucleic acids, carbohydrates, or lipids. That is, any group which contains an aromatic group may serve as the substituted aromatic group. Suitable chemical substitution moieties include, but are not limited to, alkyl, aryl and aromatic groups, amino, nitro, phosphorus and sulfur containing moieties, ethers, esters, and halogens. In some embodiments, as is more fully described below, the substitution moiety of the aromatic group is acetylene linked 1,10-phenanthroline of Structure 2, i.e. two or more 1,10-phenanthrolines share a single Z group, creating multimers and polymers (including dendrimers) of Structure 2.

In addition, the applicants respectfully submit that those of skill in the art fully accept and understand this term. For example, there are a large number of U.S. Patent Nos. that similarly define and utilize the term, and thus, this term is known in the art. See for example U.S. Patent No. 5,233,074, a copy of which is attached as Exhibit A, which

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describes the preparation of substituted aromatic compounds. This term is used in the claims and is defined at column 3, lines 43-50. Similarly, U.S. Patent No. 4,950,827, a copy of which is attached as Exhibit B, which describes the coupling of aliphatic and alicyclic hydrocarbons with substituted aromatic hydrocarbons. U.S. Patent No. 4,760,186, a copy of which is attached as Exhibit C, and U.S. No. 5,633,407, a copy of which is attached as Exhibit D, both describe the preparation of substituted aromatic amines. U.S. Patent No. 4,703,124, a copy of which is attached as Exhibit E, similarly describes the introduction of styrenes in side chains of substituted aromatic compounds.

Thus, the applicants submit that the term "substituted aromatic group" would be understood by those in the art, and is therefore not indefinite.

The Examiner requests a more complete definition of "X", "X₁" and "M". X and X₁ are co-ligands and are clearly defined in the specification at line 19, page 7 to line 3, page 9. Generally, as outlined on page 7-8, a co-ligand provides at least one coordination atom for the chelation of the metal ion M. Similarly, M is defined on page 7, lines 13-18 as a metal ion, with transitional metal ions being preferred. Thus, the applicants submit that "X", "X₁" and "M" are clearly defined within the specification and are therefore not indefinite.

The Examiner states that claim 5 is not a proper dependent claim due to the lack of antecedent basis for "X", "X₁" and "M" in claim 4. However, the applicants submit that claims 5 and 13 are proper dependent claims, containing all the limitations of the independent claim and additional components. It is perfectly acceptable to add new components for the first time in a dependent claim. Accordingly, the applicants submit that claims 5 and 13 are proper dependent claims.

The Examiner objects to the term "phosphoramidite form of the nucleotide", and references Leninger for proper terminology. However, Leninger uses this term; see Exhibit F, a copy of which is enclosed, where Leninger discusses "deoxynucleoside 3'-phosphoramidites" (see page 123, last line). New claims 20 and 21 have been added to recite "nucleosides", and claims 10 and 18 have been amended to be dependent on the new claims. Thus the applicants submit that this term is well understood in the art, and the

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rejection under §112, second paragraph, should be withdrawn.

The Examiner objects to the term "base of a nucleotide" as indefinite. The applicants respectfully submit that in the context of nucleic acids, "the base" is well understood by those in the art to mean the heterocyclic base. See for example Henderson's Dictionary of Biological Terms, 11th Edition, John Wiley & Sons, 1995, page 60, enclosed herein as Exhibit G, which defines base as follows: "in biochemistry, [base] often refers to the nitrogenous bases, the purine and pyrimidine constituents of nucleotides." Similarly, Oliver and Ward's A Dictionary of Genetic Engineering, Cambridge University Press, 1985, page 8, enclosed herein as Exhibit H, defines base as "[t]he heterocyclic compounds which are the constituents of all nucleic acids."

The Examiner asks "which base or bases?". As clearly pointed out in the specification, suitable bases include adenine, thymine, guanine, cytosine and uracil (see page 11). Similarly, the Examiner questions which ring atom locations on each of the bases individually are to be used. Again, the Examiner's attention is respectfully drawn to pages 11-13, which discusses which ring positions are preferred; the 5 or 6 position of uracil; page 11, last line to top of page 12; the 5 or 6 position of cytosine (page 13, line 9); the 5 or 6 position of thymine (page 13, line 10); the 8 position of adenine (page 13, line 11); and the 8 position of guanine (page 13, line 11). Linkages to other base analogs will be done as is appreciated by those in the art.

The Examiner objects to the use of "comprising" in claim 12. Claim 12 has been amended to remove the term, and to add a period.

The Examiner objects to the use of "A" and "B" as indefinite in claim 12. However, A and B as defined in the claim are either carbon or nitrogen; that is, the A atom is either carbon or nitrogen, and the B atom is either carbon or nitrogen, with a bond Y between them. The Y bond can be either acetylene, alkene, azo or imine. The applicants submit that this is neither functional or indefinite; the Examiner is invited to call the undersigned to discuss this matter.

The Examiner objects to claim 19 for the use of "nucleic acid". "Nucleic acid" is defined in the specification on page 11, line 6 on, as at least two nucleotides covalently

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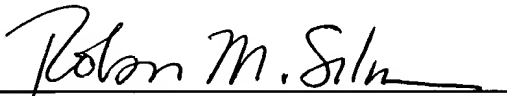
linked together, and included nucleic acid analogs. Thus, the term is not indefinite.

The applicants submit that the claims are now in condition for allowance and an early notification of such is solicited.

If after review, the Examiner feels that there are unresolved issues, the applicants respectfully request a telephone interview with the undersigned.

Respectfully submitted,

FLEHR HOHBACH TEST
ALBRITTON HERBERT LLP


Robin M. Silva
Reg. No. 38,304

Four Embarcadero Center
Suite 3400
San Francisco, CA 94111-4187
Telephone: (415) 781-1989
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